**STATE OF VERMONT**

**PUBLIC SERVICE BOARD**

**DOCKET NO. 6860**

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| Petitions of Vermont Electric Power Company Inc. (VELCO) and Green Mountain Power Corporation (GMP) for a certificate of public good, pursuant to 30 V.S.A. Section 248, authorizing VELCO to construct the so-called Northwest Reliability Project | ) ) ) ) ) |

PREFILED REBUTTAL TESTIMONY

Hans E. Mertens

ON BEHALF OF THE

VERMONT DEPARTMENT OF PUBLIC SERVICE

July 2, 2004

Summary: Mr. Mertens' testimony clarifies the DPS overall position and responds to factual disagreements regarding the VELCO NRP Proposal that surfaced during the hearing process.

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**REBUTTAL TESTIMONY OF**
**HANS E. MERTENS**

**ON BEHALF OF**
**VERMONT DEPARTMENT OF PUBLIC SERVICE**

Q. Please state your name and business address.

A. My name is Hans Mertens. My business address is Vermont Department of Public Service ("DPS"), 112 Sate Street, Montpelier, VT 05620. I am employed by the Department as Director of Engineering Services and Chief Engineer.

Q. Have you previously provided testimony in this case?

A. Yes.

**PURPOSE AND SUMMARY POSITION**

Q. What is the purpose of your testimony in this proceeding?

A. My testimony clarifies DPS's position and responds to disagreements that surfaced during the hearing on the VELCO NRP Proposal. I address several specific issues, including but not limited to reliability and undergrounding.

Q. Has the overall position of the DPS changed regarding the NRP?

A. With all the conditions and project modifications previously discussed in the Department's direct and reroute testimony, DPS continues to believe that the NRP will promote the general good of the state under 30 V.S.A. § 248(a). Consistent with its responsibilities under Title 30, DPS reserves the right to re-evaluate its position based on further information that may be provided in this proceeding.

**PSB RECORD REQUEST**

Q. The PSB invited responses from the DPS and VELCO to a number of questions in a June 22, 2004 memorandum. Does the DPS have any feedback on the questions raised?

A. Yes. DPS witnesses Litkovitz and Smith respond to #2 and #5 in their rebuttal testimony. I would like to offer some observations to question #1 from that document. First, the DPS believes VELCO should provide specific cost projections and rate impacts.[1] Our view is the question as written is perhaps too narrow, in that there are concerns other than construction costs that would bear on economic impact of undergrounding (UG).

Previous testimony regarding undergrounding has supported that long term outages are more likely to occur on UG transmission systems compared to comparable overhead (OH) systems. The economic impact of a long term outage can be a significant because of the local business impact (e.g. high quality, reliable power is unavailable for manufacturing), the need to dispatch out of merit generation, and other consequences associated with the impaired operation of the system during the outage which have the potential to limit economic dispatch of supplies and drive up congestion costs. These are very real costs that would be borne by the local zone.

Further, there is a question as to whether the estimated build costs are truly representative of actual construction. For example, the environmental impacts of UG are unknown, though most likely they will be substantially greater than the OH construction alternative. For example, in the event directional boring is required to avoid an adverse impact on wetlands, the need for boring can increase UG costs rapidly. If wetlands are disturbed and require restoration, that can likewise increase UG costs rapidly.

Also, measuring the cost impact as a rate impact, per mile, of "2 and 3 cents on an average residential monthly retail bill," must be tempered by the fact that UG is sought for approximately ten miles of this project (and perhaps more depending on what is filed in

[1]VELCO has estimated rate impacts previously. For example, in Docket No. 6792, the direct testimony of Laurie Thomas (now Aylsworth) includes a rate impact estimate at answer 26 on page 29. In addition, VELCO estimated rate impacts of the NRP in discovery provided to the Department in this proceeding (DPS1-VELCO-39).

rebuttal testimony). If the Board were to order burial of 10 miles of the proposed transmission lines, that would add $26.2 million (10 miles x $2.62 million/mile) to a project that VELCO estimates at about $122 million and DPS witness Smith estimates at about $142 million, not including the reroute. Moreover, the $26.2 million – which likely would be borne by local rate payers – would be unavailable for other economic purposes in the state.

Finally, irrespective of cost, the DPS believes the UG transmission proposal is not necessary to achieve a satisfactory construction solution but does potentially impair system reliability. The question is more than a matter of a few cents per month; there are many related issues that are of high consequence.

**IMPACT ON TOURISM**

Q. Several witnesses have raised questions on whether the project will have an impact on tourism. (See, e.g., direct testimony of Hope Alswang). Does the DPS believe the construction of the project will have a financial impact on the tourism industry?

A. We have not attempted to quantify the potential impact, if any. The Department believes that any negative impact on tourism from the project would have to ensue from the project's aesthetic impact; there is no evidence in the record that transmission facilities *per se* have a detrimental effect on tourism. Thus, adequate mitigation of aesthetic impacts should be sufficient to address the issue of impact on tourism. In addition, it would be logical to assume that aesthetics is linked to tourism when people go somewhere for the view. We question whether many of the locations being highlighted for aesthetic mitigation, such as residential neighborhoods, are in fact destinations that tourists visit primarily for the view, and therefore we question whether the project will have a significant direct impact in regards to tourism. In the case of the Vergennes reroute, any potential negative tourist impact to the basin as a result of this project has been removed. Finally, while some parties have raised questions concerning the potential impact on tourism, no party has shown that an undue adverse impact on tourism is associated with the NRP.

**SUBSTATION ISSUES**

A. During the reroute hearings, the Board raised the issue of enclosing substations. Does the DPS have any observations regarding either the new or enlarged substations along the NRP, including the possibility of enclosing one or more of them in structures?

Q. Our aesthetic consultant David Raphael has evaluated all known sites (although, we understand that Charlotte may have an additional proposal which we have not reviewed). We believe VELCO can effectively screen all the stations; however, the need for both noise and lighting evaluations at the substation sites remains. Therefore, our view is that the added cost of enclosing a substation for aesthetic reasons, as discussed in the testimony of DPS witnesses Litkovitz and Smith, is unnecessary. We also recognize that security concerns, none of which is specifically known at this time, may conflict with a desire to increase the amount of landscaping at each site.

**POST-CERTIFICATION REVIEW**

Q. Fred Dunnington addressed the issue of post-certification process in his direct testimony (pages 14-15) and the Board asked questions on post-certification review during the direct and reroute hearings. Does the DPS have an opinion regarding post certification review?

A. Post-certification review is an effective tool in balancing the need for timely approval, and containing design expenses by use of low detail drawings, with providing a process to assure the work gets done properly. The DPS shares the concerns of the other parties with regard to the aesthetic impact of this project and agrees with Mr. Dunnington that affected parties should have an opportunity to be heard during any post-certification review. While we are confident the visual impacts of substations and poles can be mitigated appropriately, we also believe that in some cases the best way to resolve objections is to provide the latitude to address problems during the construction phase, with the involvement of affected parties.

While it is desirable to plan for and include remedial measures in the application wherever possible, there are limits to what can be achieved at the drawing board. Well prepared construction drawings are helpful, but attempts to be overly specific and precise for the entire NRP may be counterproductive. We favor an approach that combines flexibility in the field with accountability to the PSB.

Q. What alternatives are available?

A. The DPS supports the PSB's initiative of selectively choosing segments of the NRP that are representative of sensitive areas and preparing very detailed construction drawings for them. Providing artist renderings or graphic overlays of the proposed construction which show mature vegetation could be very helpful in determining whether a particular solution is acceptable. In some ways this is more valuable than relying solely on post-certification. It is important to confirm a particular solution can achieve the desired result, not merely that the construction was completed as proposed. This approach appears to balance the need for specificity in selected areas, while not insisting on an unnecessarily expensive degree of detail for the entire route.

Q. Are there any additional certification requirements that are warranted?

A. Yes. Given the scope of the NRP, it is also important that we consider any temporary or staging work that must be done to facilitate the project. Often this advance work is significant and can have a local impact for an extended period. We recommend that VELCO clearly identify preparatory, or temporary construction that may be required as part of their submission and include that construction and restoration of work sites as a post certification item.

**NEED FOR NRP**

Q. With reference to Dr. Edward Fagen's direct testimony about wheeling power and the ability to eliminate the 345 kV line from the project, do you believe his arguments are correct?

A. No. Simply stated the selection of system components in the NRP are not dictated by incremental load in Vermont alone; rather, system reliability concerns for the grid as a whole enter into the planning. Power planners need to follow very prescriptive reliability criteria dictates. These criteria drive the solution. A chain fails by virtue of its weakest link. This is equally applicable to the electric grid as demonstrated by the August 14, 2003 Midwest Blackout experience.

Moreover, there currently is no surplus long term supply available from Canada, nor are actions planned that would increase the capacity at interconnections between Vermont and either NY or CA for the purpose of creating more import capability. Without these conditions present, no one benefits from building excess capacity, while construction would need to be paid for by everyone in New England. This would not pass the scrutiny of the ISO Reliability Committee process.

**DISTRIBUTED RESOURCES**

Q. Paul Chernick addressed the issue of distributed resources (DR) and load management in his direct testimony (see, e.g., pages 5, 15 and 35). Has the DPS received any additional information regarding DR?

A. Yes. The ISO has revised its 2004 LRP program to increase the response from Distributed Resources (DR) such as cogeneration, load response and conservation. There was a major update to enhance the incentives for participants and make the Program more user friendly.

| Active: June 1, 2004 | | | Pending: | |
|---|---|---|---|---|
| Zone | Assets | Total MW | Assets | Total |
| CT | 110 | 97.0 | 9 | 54.8 |
| ME | 5 | 78.5 | | |
| NEMA | 117 | 45.3 | | |
| NH | 2 | 0.6 | | |
| RI | 11 | 2.0 | | |
| SEMA | 76 | 8.3 | | |
| VT | 15 | 13.1 | | |
| WCMA | 87 | 24.8 | 1 | 0.3 |
| Total | 423 | 269.5 | 10 | 55.1 |

Q. What are the current forecasts for new and additional DR?

A. Participation in the ISO Demand Response Program has steadily increased since its inception in 2000. From 2003 to 2004, enrolled Assets have increased from 208 to 423. In VT, there were 7 participants representing 8.1 MW in 2003, compared to 15 Assets and 13.1 MW in 2004.

Q. Has FERC done anything to promote the success of DR efforts?

A Yes. In their order approving the RTO, FERC mandated the creation of a 6$^{th}$ Sector at NEPOOL to focus on Alternative Resources. This provides a voice for providers of distributed generation and demand response solutions during the planning process.

Q. Given these efforts, does the DPS still believe there is a need for the NRP and in particular the 345kV from West Rutland to New Haven?

A. Yes. While progress is evident, the timing and amount of DR available in VT is not likely to close the supply gap that is forecast. These efforts do hold promise for deferring future transmission upgrades.

**UNDERGROUNDING**

Q. Jean Vissering suggests, in her supplemental direct testimony (page 5), a mitigation technique of placing distribution lines undergound at road crossings. What is the Department's view on the possibility of undergrounding selected distribution lines at selected road crossings to facilitate the building of transmission line crossings?

A. It is reasonable to consider this possibility. We believe at road crossings this could result in a solution that has no negative impact on the bulk transmission system. Importantly, undergrounding distribution is less complicated than burying transmission, reliability impacts are localized, and combined construction costs may in some instances represent a least cost solution.

Burying distribution at road crossings allows transmission lines to be lowered which can reduce construction costs and the visual impact of the structures. Moreover, in some cases, the offsetting increase in distribution costs may be assigned to the project and recovered as PTF qualified construction expenses when they are done to produce a net benefit for the transmission project. In all cases, the details matter and the solution should be selected on a site-specific basis.

Q. Does this position regarding distribution lines influence your thinking regarding undergrounding (UG) the 115kV transmission line?

A. The DPS's primary objections to UG transmission are the potential degrading of reliability of the bulk system and the unnecessarily higher construction costs that Vermonters will be obligated to pay. We support using UG as a solution for transmission only when other measures to mitigate aesthetic impacts are not viable. In this instant case, we believe, the OH construction can be adequately mitigated as provided in David Raphael's direct and supplemental direct testimony.

Q. Did the DPS conduct any analysis regarding the potential level of EMF associated with UG cables?

A. Yes. PDC was retained to perform some typical calculations. As detailed in Vermont Department of Health (VDH) Underground Supplement testimony, elevated EMF levels near the center line of the cable array can be calculated. VDH concludes that the magnetic power frequency field for the Underground Cable may pose a public health hazard for children directly over the underground transmission cables. In accordance with VDH's assessment, the DPS adopts their recommendation that all other things being comparable, the mode of transmission emitting the lowest EMF should be adopted.

**RELIABILITY**

Q. With reference to Mr. Chernick's direct testimony (pages 11 and 12) on the reliability problem that VELCO and the DPS have identified, do you have any observations to make?

A. Yes. The witness offered opinions that were not supported by analysis on a topic for which he did not demonstrate expertise. Moreover, recent events as detailed in the ISO Cold Snap (January 16, 2004) Task Force Interim Report did act in combination to cause system disruptions which impacted transmission system reliability. The issue is not hypothetical.

I don't believe it is appropriate, or responsible, to view reliability criteria as a suggested target. Rather, it must be viewed as an obligation. It is an important goal, and failure to achieve the goal in a timely manner has real consequences.

Q. You say compliance with reliability criteria should be viewed as an obligation, but aren't the standards voluntary?

A. The industry adopted standards are viewed as mandatory minimums but enforcement capability is limited. VELCO and ISO-NE have historically carefully followed the *"mandatory standards and voluntary compliance"* prevailing protocol that the NERC and the industry created. NERC criteria violations do result in sanction letters. However, compliance is primarily dependent on good will. As a result of the Midwest Blackout of August 14, 2003, the FERC has taken several initiatives to demonstrate their willingness to

commence enforcement actions where appropriate. The Blackout Investigation has resulted in numerous recommendations that are likely to result in mandatory standards and *mandatory* compliance.

Q. Does the construction of the 345kV line address the reliability concerns expressed by the DPS as a result of the supply shortage identified in the LaCapra Report?

A. Perhaps. VELCO has indicated they intend to modify their construction sequencing and build the 345kV line earlier than originally planned. They believe this will correct the supply deficiency identified in the LaCapra report. However, the DPS has not been provided additional information confirming this result.

Q. Does this conclude your testimony?

A. Yes.